



FLORIDA POLYTECHNIC
UNIVERSITY

Capstone Design

Design Thinking Mini Challenge

M. Bohm, Fall 2024

Design Thinking Mini-Challenge

Objective

- To demonstrate your understanding of the design thinking process.
- Quickly apply each stage to address a minor, everyday problem.



Design Thinking Mini-Challenge

Step 1: Select a Problem

- Choose a simple, everyday problem.
 - Enhancing the usability of a household item (e.g., a coffee mug, a remote control).
 - Improving a daily routine (e.g., morning commute, meal preparation).
 - Streamlining a digital interaction (e.g., logging into a website, setting an alarm).
 - Improving the ergonomics of a frequently used tool (e.g., scissors, kitchen knife).
 - Simplifying a common task (e.g., organizing a desk, managing cables).
 - Enhancing a routine service experience (e.g., waiting in line, ordering at a café).
 - Reducing waste in a daily activity (e.g., packing lunch, using office supplies).



Design Thinking Mini-Challenge

Step 2: Empathize

- Conduct brief user research to understand user needs and challenges.
- Methods: Reflect on personal experiences or interview one person.
- Deliverable: Write a summary of key insights (3-5 sentences).



Design Thinking Mini-Challenge

Empathy in Action

- Example Problem: Enhancing the usability of a coffee mug.
- Empathy Activity: Interview a coworker about their morning coffee routine.
- Insights: Mug is hard to clean, handle is uncomfortable, not microwave-safe.



Design Thinking Mini-Challenge

Step 3: Define

- Synthesize findings to define the core problem.
- Craft a concise problem statement.
- Deliverable: Write a clear problem statement (1-2 sentences).



Design Thinking Mini-Challenge

Defining the Problem

Problem Statement: "Current coffee mug designs are difficult to clean, have uncomfortable handles, and are not microwave-safe, leading to user frustration."

Key Pain Points:

- *Cleaning Difficulty:* Narrow openings, hard-to-reach corners, and residue buildup
- *Uncomfortable Handles:* Poor ergonomics, awkward grip, and lack of insulation
- *Not Microwave-Safe:* Materials that overheat, crack, or retain odor



Design Thinking Mini-Challenge

Step 4: Ideate

- Generate a range of ideas to solve the problem.
- Brainstorm multiple (at least 3-5) ideas for each component of the problem.
- Deliverable: List and briefly describe each idea.



Design Thinking Mini-Challenge

Brainstorming Solutions

Uncomfortable Handles

1. Ergonomically shaped handle
2. Adjustable or Modular Handle
3. Soft Sleeve or Grip Wrap
4. Double-Loop Handle
5. Temperature-Responsive Handle

Cleaning Difficulty

1. Mug with detachable handle for easier cleaning
2. Mug with a self-cleaning mechanism
3. ...
4. ...
5. ...

Not Microwave-Safe

1. Microwave-safe material with a heat-resistant exterior
2. Double-walled design to keep coffee hot longer
3. ...
4. ...
5. ...



Design Thinking Mini-Challenge

Step 5: Prototype

- Create a low-fidelity prototype of the chosen solution.
- Methods: Sketch, paper model, or digital mockup.
- Deliverable: Submit a photo/screenshot with an explanation (3-5 sentences).



Design Thinking Mini-Challenge

Prototype the Solution

- Example: Sketch of a detachable handle and ergonomic grip.
- Explanation: "The detachable handle allows for easier cleaning, while the ergonomic design improves comfort during use."



Design Thinking Mini-Challenge

Step 6: Test

- Test the prototype to gather feedback.
- Methods: Self-test or get feedback from one person.
- Deliverable: Write a summary of feedback and potential improvements (3-5 sentences)



Design Thinking Mini-Challenge

Testing and Feedback

- Feedback: "The detachable handle concept is useful, but the connection feels flimsy. Consider a more robust attachment mechanism."
- Improvement: "Strengthen the handle connection and explore alternative materials for durability."



Design Thinking Mini-Challenge

Summary of Deliverables

- Key Insights Summary (3-5 sentences).
- Problem Statement (1-2 sentences).
- List of Ideas with Descriptions (1-2 sentences each).
- Prototype Photo/Screenshot with Explanation (3-5 sentences).
- Feedback Summary with Potential Improvements (3-5 sentences).



Design Thinking Mini-Challenge

Discussion

- How did each stage contribute to refining the problem and solution?
- Were there any surprises during testing?
- How did feedback shape the final design?

